|  |  |
| --- | --- |
| **Post Details** | **Last Updated:** 03/04/2020 |
| **Faculty/Administrative/Service Department** | Faculty of Engineering & Physical Sciences / School of Veterinary Medicine |
| **Job Title** | Research Fellow |
| **Job Family**  | Research | **Job Level**  | 4a – 5a |
| **Responsible to** | Dr Kevin Wells / Prof Clare Rusbridge |
| **Responsible for (Staff)** | N/A |
| **Job Purpose Statement**This role exists to build a computer vision system to capture the external surface of pedigree dog heads and to undertake analysis using AI/machine learning to ascertain those external traits characteristic of disease. |
| **Key Responsibilities** This document is not designed to be a list of all tasks undertaken but an outline record of the main responsibilities (5 to 8 maximum)  |
| 1. Planning, developing and delivering a portable computer vision system for use by veterinary staff by liaising with CVSSP, Vet School staff and any other collaborators.
2. To calibrate and demonstrate proof-of-concept operation pf the system.
3. To be available at public events and outreach activities to demonstrate the system.
4. To gather data at public events and at veterinary surgeries, liaising and working with veterinary staff, member sf the public and companion animal owners.
5. To present work at conferences and develop published work for publication in peer reviewed journals.
6. To work with other members of the HEADSpace group in the further development of this project and new related research in this area/

**N.B. The above list is not exhaustive.** |
| All staff are expected to:* Positively support equality of opportunity and equity of treatment to colleagues and students in accordance with the University of Surrey Equal Opportunities Policy.
* Work to achieve the aims of our Environmental Policy and promote awareness to colleagues and students.
* Follow University/departmental policies and working practices in ensuring that no breaches of information security result from their actions.
* Ensure they are aware of and abide by all relevant University Regulations and Policies relevant to the role.
* Undertake such other duties within the scope of the post as may be requested by your Manager.
* Work supportively with colleagues, operating in a collegiate manner at all times.

**Help maintain a safe working environment by:*** Attending training in Health and Safety requirements as necessary, both on appointment and as changes in duties and techniques demand.
* Following local codes of safe working practices and the University of Surrey Health and Safety Policy.
 |
| **Elements of the Role** |
| **Planning and Organising** * The post holder will also be responsible for organising their research and agreeing timelines and development plans with other members of the HeadSPACE team.
 |
| **Problem Solving and Decision Making** * The post-holder will be expected to use their technical skills to understand and resolve technical issues whilst testing and debugging and providing a range of viable solutions to the issues.
 |
| **Continuous Improvement*** The role requires a sound knowledge of computer vision, AI and data capture. The post-holder will be expected to keep their knowledge of key technology advancements current in order to produce high quality research outputs.
 |
| **Accountability** * The "post-holder" will be accountable to Dr Wells and Prof Rusbridge and will be expected to meet regularly with the project academics to keep them informed of progress.
 |
| **Dimensions of the role** * The post holder will be expected to organise their work independently and deliver updates to the team.
* The post holder will be required to communicate any problems or issues of a technical nature, to team members of a widely varying technical background.
* The role requires no management of contracts or budgets. However, where project spend is required, the post holder should seek authorization from the project academics Dr Wells & Prof Rusbridge.
 |
| **Supplementary Information**  |
| **Person Specification**  |
| **Qualifications and Professional Memberships** |  |
| Professionally qualified with a relevant degree/postgraduate qualification, plus experience in computer vision and 3D image captureOrExtensive vocational/industrial experience demonstrating computer vision, vision system and camera capture technology.  | E |
| **Technical Competencies (Experience and Knowledge)** This section contains the level of competency required to carry out the role (please refer to the Competency Framework for clarification where needed and the Job Matching Guidance). | **Essential/Desirable** | **Level****1-3** |
| Experience with MS Azure cameras  | D | 3 |
| Experience with 3D computer vision, surface reconstruction, and camera technologies | E | 3 |
|  |  |  |
| Ability to capture 3D surface data analysis and perform analysis on such data | D | 3 |
| Experience with Lynux, Matlab/Python/C++/C# | E | 3 |
| Ability to produce, write and present high quality scientific work to a scientific audience | E | 3 |
| **Special Requirements:**  | **Essential/Desirable** |
| Demonstration of excellent communication skills and ability to work as part of a multi-disciplinary research team excellent | E |
| Working with animals/veterinarians | D |
| **Core Competencies** This section contains the level of competency required to carry out this role. (Please refer to the competency framework for clarification where needed). n/a (not applicable) should be placed, where the competency is not a requirement of the grade. | **Level****1-3** |
| CommunicationAdaptability / FlexibilityPlanning and OrganisingContinuous ImprovementProblem Solving and Decision Making SkillsWorking with collaborators and the general publicCreative and Analytical Thinking | 3222332 |
| Should significant changes to the Job Purpose become necessary, the post holder will be consulted and the changes reflected in a revised Job Purpose. |
| **Organisational/Departmental Information & Key Relationships** |
| The HEADSpace project is an exciting opportunity to take charge of developing a new computer vision system dedicated to the instantaneous surface capture of dogs without requirement for anaesthesia, restraint or sedation. This is a collaboration between Surrey’s Centre for Vision. Speech & Signal Processing and the School of Veterinary Medicine.The camera system will be based on using state-of-the-art Microsoft Azure camera technology. The system will be designed for portability and capture of data in real-world settings at vet practices, and public events such as dog shows and other public outreach events (subject to current got guidelines at the time). Development of the system will make use of our in-house capture facilities and extensive computing facilities.We will use data gathered in the field to further our on-going work to correlate external appearance of the head to known internal morphological issues using machine learning methods.The post holder will also collaborate with the current PhD student in the analysis and seek to develop further methods to use machine learning to discover new correlations between breeding induced changes in external appearance with neuro-morphological changes and clinical signs. The position may be renewable for a further year subject to satisfactory progress. |
|  |
| Relationships *This is not an exhaustive list of every relationship the post holder has, but is a brief description of those that play an important part in the post holder successfully carrying out the role. It should identify the significant internal and external relationships and contacts that the post holder has in their job and describe the overall purpose and nature of those relationships (i.e. exchanging information, negotiating, networking, etc.)***Internal*** Academic/Research Staff
* Centre for Vision, Speech and Signal Processing
* School of Veterinary Medicine
* IT Support Staff

**External*** Collaborating vet practices such as Fitzpatrick Referrals
* Dog’s Trust
* Public event organisers, dog owners, general public

**N.B. The above list is not exhaustive.** |